



**Fermilab**

TM-1027  
2320.000

## A Microcomputer/CYBER Data Transfer System

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A software system has been developed to facilitate the transmission of ASCII text and data files between the Fermilab CYBER computer system and CP/M compatible Z80 Microcomputers such as the Cromemco Z2.

Communication between computers is via the dial-up service of the CYBER system, thus the Microcomputer must have a peripheral serial port dedicated to a standard MODEM.

Two programs for the Microcomputer, UPLOAD and DOWNLOAD, transmit files to and receive files from the CYBER respectively. Both programs allow the Microcomputer operator to enter an interactive mode with the CYBER system for log-in sequences, etc.

The Microcomputer programs, once log-in sequences are completed, evoke a CYBER procedure which activates any files to be read or creates any files to be written. One of two FORTRAN programs (written by A.Tanner) is then executed by the procedure to effect the transfer. All CYBER files used by the system are Indirect Access Permanent Files. Information sent to the CYBER with a preexisting file name will be appended to that file.

A data byte count and checksum is generated and checked, allowing the system to retransmit any line containing a transmission error.

The following are descriptions of each Microcomputer program and a copy of an example UPLOAD/DOWNLOAD session.

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## UPLOAD - UPLOAD FILES FROM MICROCOMPUTER TO HOST

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THE UPLOAD UTILITY TRANSFERES FILES FROM A DISK FILE OR OTHER LOGICAL DEVICE TO THE CDC CYBER COMPUTER THROUGH THE MODEM I/O FACILITIES OF THE MICROCOMPUTER.

UPLOAD HAS TWO MODES OF OPERATION, THE INITIALIZATION MODE:

COMMAND FORMAT -           X:UPLOAD<CR>

WHERE X:UPLOAD EVOKES THE UPLOAD.COM FILE RESIDENT ON DISK X:. IN THIS MODE OF OPERATION CONTACT IS FIRST ESTABLISHED BETWEEN THE MICROCOMPUTER CONSOLE AND THE MODEM ALLOWING THE OPERATOR TO LOG-IN ON THE CYBER SYSTEM. FILE NAME SPECIFICATIONS ARE THEN ENTERED IN RESPONSE TO PROMPTS FROM THE UPLOAD PROGRAM AND THE UPLOAD PROCESS BEGINS AUTOMATICALLY WHEN ALL PARAMETERS HAVE BEEN ENTERED. IF THE CHARACTER '\*' IS GIVEN IN RESPONSE TO THE CYBER FILE NAME PROMPT, THE FILE NAME GIVEN FOR THE LOCAL DATA FILE WILL BE ASSUMED.

THE SECOND OPERATIONAL MODE, THE CONTINUATION MODE:

COMMAND FORMAT -           X:UPLOAD HOSTNAME=Y:FILENAME.EXT<CR>

WHERE X:UPLOAD EVOKES THE UPLOAD PROGRAM AS ABOVE, HOSTNAME IS THE FILE NAME TO BE CREATED ON THE CYBER COMPUTER, AND Y:FILENAME.EXT IS THE DATA FILE NAME SPECIFIER FOR THE FILE TO BE TRANSFERRED IF THE SOURCE DEVICE IS THE DISK. IF 'HOSTNAME' IS REPLACED WITH THE SINGLE CHARACTER '\*', THE FILE NAME GIVEN FOR THE LOCAL DATA FILE WILL BE ASSUMED. IF X: OR Y: IS OMITTED THE CURRENT DISK IS ASSUMED. SEE THE CROMEMCO CDOS OR CP/M USER'S MANUAL FOR ADDITIONAL DISK FILE SPECIFICATION DESCRIPTIONS. IN THIS MODE OF OPERATION IT IS ASSUMED THAT THE HOST COMPUTER IS PRESENTLY ON LINE AND IN MONITOR COMMAND MODE. THE UPLOAD PROCESS IS IMMEDIATELY INITIATED IF THE SOURCE FILE IS AVAILABLE.

IF AT ANY TIME DURING THE UPLOAD PROCESS ESCAPE (ESC) IS ISSUED BY THE OPERATOR THE PROCEDURE WILL BE ABORTED.

THE STANDARD RELEASE OF UPLOAD COMMUNICATES WITH THE HOST THROUGH SERIAL PORT A OF A CROMEMCO TU-ART BOARD ADDRESSED AT PORT 20H. UPON SIGN-ON (INITIALIZATION MODE) UPLOAD REQUESTS THE BAUD RATE OF THE HOST COMPUTER. ALLOWABLE RATES INCLUDE 9600, 4800, 2400, 1200, 300, 150, AND 110 BAUD.

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## UPLOAD EXAMPLE

B.

B.UPLOAD ← CP/M Command for UPLOAD Initialization mode.

UPLOAD VERSION 02.00

CYBER 170 SYSTEM

ENTER HOST BAUD RATE (RETURN FOR 300) :      ← CR entered for default.

BAUD RATE SET TO 300

LINKED TO HOST - TYPE CTRL-D TO DETACH

81/02/12, 14.04.05, T31A

FERMILAB 3 X 175 (EE) 80/11/11, NOS 1.3-485/508.

USER NAME:                     

TERMINAL: 46, NAMIAF

RECOVER/ CHARGE:                     

\$CHARGE,G103.

/

07.10.59, WARNING

\*\* DISK SPACE IS LOW - OPEN ANY POSSIBLE \*\*

IDLE

← CTRL-D typed here.

ENTER CYBER FILENAME (1 - 7 CHARACTERS) : \*      ← Wildcard used for CYBER name.

ENTER LOCAL FILENAME (X:FILENAME.EXT) : UPDNDEM.TXT

GET(UPDNLNK/UN=92238)

/UPDNLNK,UP,UPDNDEM

T

? :056131SOME LINES OF TEXT TO DEMONSTRATE UPLOAD/DOWNLOAD SYSTEM

T

? :050091The system will transmit all 128 ASCII characters.

T

? :020234That means tabs too.

T

? :0100131234567890

T

? :000000

F

REVERT.

TRANSFER COMPLETED TO HOST - LINKED TO HOST - TYPE CTRL-D TO DETACH

REVERT, UPDNDEM NOW INDIRECT ACCESS FILE.

/IDLE

← CTRL-D typed here.

\*\*\* END OF JOB \*\*\*

Note: Underlined items typed by operator.

B.

↑  
\_\_\_\_\_  
UPLOAD in  
interactive  
mode to allow  
CYBER Log-in.  
↓  
\_\_\_\_\_

↑  
\_\_\_\_\_  
UPLOAD  
system  
takes over  
and does  
the  
transfer.  
↓  
\_\_\_\_\_

# DOWNLOAD EXAMPLE

B.  
B.DOWNLOAD UPDNDEM.TXT=\* ← CP/M Command for DOWNLOAD Continuation mode.

DOWNLOAD VERSION 02.00

CYBER 170 SYSTEM

FILE ALREADY EXISTS...

DELETE AND START NEW FILE? (Y/N) Y ← { File was already on local  
computer --- this is to prevent  
some stupid mistakes.

/UPDNLNK,DOWN,UPDNDEM

?T

: 56131SOME LINES OF TEXT TO DEMONSTRATE UPLOAD/DOWNLOAD SYSTEM

?T

: 50 91The system will transmit all 128 ASCII characters.

?T

: 20234That means tabs too.

?T

: 10 131234567890

?T

: 0 0

F

TRANSFER FROM HOST COMPLETED - LINKED TO HOST - TYPE CTRL-D TO DETACH

REVERT. UPDNDEM DOWNLOAD COMPLETE.

/BYE

92238 LOG OFF 14.09.34.

92238 SRU 1.777 UNITS.

← CTRL-D typed here.

IAF CONNECT TIME 00.05.19.

LOGGED OUT.

\*\*\* END OF JOB \*\*\*

↓  
DOWNLOAD  
system  
takes over  
and does  
the  
transfer.  
↓

B.

Note: Underlined items typed by operator.